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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,497	09/25/2001	Bernhard Raaf	112740-315	2083
29177	7590	08/26/2004	EXAMINER	
BELL, BOYD & LLOYD, LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			HOOSAIN, ALLAN	
			ART UNIT	PAPER NUMBER
			2645	6

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/937,497

Applicant(s)

RAAF, BERNHARD

Examiner

Allan Hoosain

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because it is not on a separate page.

Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1,30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by **Kobayakawa et al.** (US 6,064,338).

As to Claim 1, with respect to Figures 1-4, **Kobayakawa** teaches a method for controlling the beam (transmitting power) in a mobile radio system, in which a signal is transmitted from a transmitter via a transmission channel of the mobile radio system and received by a receiver, the method comprising the steps of :

evaluating the signal received by the receiver generating correlation signals (a power control information item) based on the evaluation of the received signal (Figure 7, label 101);

transmitting the power control information item to the transmitter (Figure 7, label 106);

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adjusting the transmitting power at the transmitter in dependence on the power control information item (Col. 11, lines 27-32 and Figure 8);

estimating the behavior of the transmission channel (Figure 7, labels 103,104, Col. 2, lines 20-23 and Col. 11, lines 7-20);

estimating the transmitting power needed based on the result of the estimation of the behavior of the transmission channel (Col. 11, lines 28-38);

wherein the power control information item is generated on the basis of the estimated transmitting power needed and is transmitted to the transmitter (Col. 11, lines 28-38); and

the estimated behavior of the transmission channel is determined by prediction and the transmitting power needed in future is estimated in dependence on the result of the prediction of the behavior of the transmission channel (Col. 11, lines 28-38).

As to Claims 30-32, with respect to Figures 1-4, **Kobayakawa** teaches a mobile radio system comprising;

a transmitter (Figure 8 and Col. 6, lines 51-58);

a receiver for receiving a signal of the transmitter transmitted via a transmission channel of the mobile radio system and for evaluating the received signal in order to generate a power control information item in dependence thereon, and to transmit the power control information item to the transmitter (Col. 6, lines 8-13);

the transmitter being constructed in a manner such that the transmitting power is adjusted in dependence on the power control information of the receiver (Col. 6, lines 28-33);

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the receiver being constructed in a manner such that the behavior of the transmission channel is estimated in dependence on the received signal, and the receiver determines the needed transmitting power based on the result of the estimation of the behavior of the transmission channel (Col. 6, lines 45-58), and

wherein the receiver generates the power control information item and transmits the power control information item to the transmitter on the basis of the determined necessary transmitting power (Col. 6, lines 51-58 and Col. 11, lines 26-38).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kobayakawa** in view of **Scherzer** (US 6,347,234).

As to Claim 2, **Kobayakawa** teaches the method as claimed in claim 1, wherein the behavior of the transmission channel state is estimated:

**Kobayakawa** does not teach the following limitation:

“by predicting the channel impulse response”

However, it is obvious that **Kobayakawa** suggests the limitation. This is because **Kobayakawa** teaches obtaining channel estimates (Col. 9, lines 29-31). **Scherzer** teaches

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channel estimates which are impulse responses (Col. 18, lines 19-39 and Col. 7, lines 3-5). Since **Kobayakawa** and **Sherzer** are in analogous CDMA beam forming art at the time the invention was made, it would have been obvious to one of ordinary skill in the art to add impulse response capability to **Kobayakawa's** invention for correlating received signals as taught by **Sherzer's** invention in order to provide high success in identifying received signals.

As to Claim 3, **Kobayakawa** teaches the method as claimed in claim 1, wherein the behavior of the transmission channel state is estimated:

**Kobayakawa** does not teach the following limitation:

“by predicting the carrier/interferer ratio”

However, it is obvious that **Kobayakawa** suggests the limitation. This is because **Kobayakawa** teaches providing directional beams (Figure 8). **Sherzer** teaches carrier/interferer ratios (Col. 8, lines 28-38). Since **Kobayakawa** and **Sherzer** are in analogous CDMA beam forming art at the time the invention was made, it would have been obvious to one of ordinary skill in the art to add carrier-to-interference capability to **Kobayakawa's** invention for improving beam forming as taught by **Sherzer's** invention in order to provide optimal downlink signals to users.

6. Claims 4-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kobayakawa** in view of **Scherzer** and further in view of **Teder et al.** (US 5,544,156).

As to Claims 4,10,12, **Kobayakawa** teaches the method as claimed in one of claim 3, wherein the behavior of the transmission channel is estimated at regular intervals,

**Kobayakawa** does not teach the following limitation:

“the interval between the individual estimates of the behavior of the transmission channel and the period over which the behavior of the transmission channel is predicted being selected to be shorter than a coherence time of the transmission channel”

However, it is obvious that **Kobayakawa** suggests the limitation. This is because **Kobayakawa** teaches coherent detection in DC-CDMA systems (Col. 3, lines 19-24). **Teder** teaches the limitation (Col. 4, lines 53-67). Since **Kobayakawa** and **Teder** are in analogous CDMA art at the time the invention was made, it would have been obvious to one of ordinary skill in the art to add coherent time capability to **Kobayakawa**'s invention for obtaining precise complex amplitude estimates as taught by **Teder**'s invention in order that channel noise does not affect amplitude estimates.

As to Claims 5,11,13, **Kobayakawa** teaches the method as claimed in claim 4 wherein the value of the power control information item is adjusted to be linearly dependent on the result of the estimation of the behavior of the transmission channel (Col. 2, lines 18-25).

As to Claims 6,14,18,22,26, **Kobayakawa** teaches the method as claimed in claim 5 wherein the power control information item is generated in dependence on the estimated behavior of the transmission channel and also additionally in dependence on the instantaneously measured received level of the signal received by the receiver, the proportion of the estimated behavior of the transmission channel in the generation of the power control information item being adjusted in dependence on the characteristic behavior of the transmission channel (Col. 2, lines 29-62).

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As to Claims 7,15,19,23,27, **Kobayakawa** teaches the method as claimed in claim 6, wherein one of the transmitter and receiver is a mobile unit, and wherein the proportion of the estimated behavior of the transmission channel in the generation of the power control information is adaptive (reduced at higher speeds) of the mobile unit (Col. 7, lines 13-30 and Col. 6, lines 51-58).

As to Claims 8,16,20,24,28, **Kobayakawa** teaches the method as claimed in claim 7, further comprising the step of estimating the phase rotation (instantaneous speed) of the mobile unit and wherein the proportion of the estimated behavior of the transmission channel in the generation of the power control information item is adjusted in dependence on the phase rotation (estimated speed) of the mobile unit (Col. 7, lines 19-38).

As to Claims 9,17,21,25,29, **Kobayakawa** teaches the method as claimed in claim 8, further comprising the step of measuring the channel impulse response of the transmission channel, and estimating the coherence time of the transmission channel in dependence on the measured channel impulse response in order to derive the instantaneous speed of the mobile unit therefrom (Col. 2, lines 35-39 and Col. 7, lines 35-38).



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*Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Moulsley** (US 6,407,993) teaches optimizing uplink and downlink wireless communications using channel estimation.

**Gourgue** (US 5,564,075) teaches controlling power from mobile stations to base stations.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks  
Washington, D.C. 20231  
or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Or:

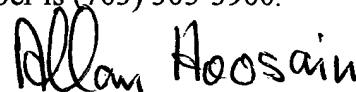
(703) 306-0377 (for customer service assistance)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Allan Hoosain** whose telephone number is (703) 305-4012. The examiner can normally be reached on Monday to Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Fan Tsang**, can be reached on (703) 305-4895.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

  
**Allan Hoosain**  
**Primary Examiner**  
8/16/04